164 altitudes as high as 1,600 to 1,700 meters, once even at
[136] 2,140 meters east of Usumbura. There I saw natives suffering from malaria, and I treated them with quinine. Some of the members of my caravan were also infected. However, it appears that blackwater fever occurs not at all or only very rarely. The highland Barundi are particularly afraid of being infected with malaria in the lowlands of the Akanjaru and the Ruvuvu in the north, in the swampy lakes in the northeast, and in the low, warm coastal area of Lake Tanganyika with the adjoining valley of the Ruzizi River, but the relatively few Barundi who live there permanently appear to be immune for the most part.

The highland Barundi are extremely sensitive to changes
164 in climate when traveling or when changing their residence.
147 In former times when the neighboring areas, for example, Ussumbwa, were still importing female slaves from Urundi, they calculated that eight out of ten slaves would perish because they could not live in the climate (No. 14, 1900-1901, p. 178). The missionaries in Mariahilf in Uschirombo report that in their missionary orphanage they always have quite a number of children from Urundi and Ruanda who are unable to get used to the climate of Uschirombo (which is not particularly bad) and who are almost always sick. The women who go there from Urundi and Ruanda have the same difficulty. Quite a few of them die or lose so much weight that they look like skeletons. Many of them recover after about a year, but they remain weak (No. 14, 1900-1901, p. 288). I would like to add that, according to my own observations, it is not merely the change of
● [146] climate which is responsible for these cases of sickness but also the change in food, for example, lack of milk and poor water. In any case, it has been confirmed by experience that in the whole of East Africa the inhabitants of the cool mountainous areas and the highlands, such as Ruanda, Urundi, Uhehe, Usambara, etc., cannot live for any length of time in the lower, warmer regions, as, for example, in Unjamwesi, Ugogo, Useguha, and the coastal areas. This should be a serious warning to us not to import great numbers of people for work in the plantations of the lowlands, or, as the slogan goes, to open the gates of

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Ruanda. The exception was the place where the royal court happened to be established. At the end of the nineteenth century the most permanent site was Nyanza, which was and still is regarded as the capital. One or two thousand people lived there, but Nyanza was not a village or a town. It was rather the great homestead of the king surrounded by the small temporary dwellings occupied by the different chiefs when they came to the court to pay a more or less long and obligatory visit to their sovereign. The king had other residences throughout the country where he stayed regularly.

Markets do not appear to have been numerous in Ruanda before the European occupation. Goods were exchanged mainly through other channels; the tribute of subject, dues of clients, gifts from the lords, &c. At all events the few markets where goods from abroad, such as rock-salt coming from the Lake Edward region, were exchanged, did not become centres of villages as in many other parts of Africa.

5. HEALTH

The general health of a people is as significant a part of the background of their culture and social institutions as are physical environment or demography. We can only conjecture about the situation before Europeans came, but there is some evidence.

The health of a group of people depends partly on their diet. The present day diet is lacking in animal proteins, vegetable fats (containing vitamins A, D, and E), and green vegetables.[36] We have no reason to believe that there was a higher consumption of meat fifty years ago, or that there were oleaginous plants growing which have disappeared and that the habit of eating green vegetables has been lost. According to nutritionists, these shortcomings cannot be compensated by a consumption, however abundant, of carbohydrates, a high percentage of which is to be found in maize, sorghum, peas, and beans. Also, if a fairly adequate consumption of the latter foodstuffs is possible now (in the sense that the total annual yield for the country is sufficient for the total number of people), it is not to be assumed that the total production was as high fifty years ago as it is now. On the contrary, the figures we have indicate that fifty years ago, the production of maize, sorghum, peas, and beans was much lower than today.

[36] Ministère des Colonies, 1951b, p. 56; Close, 1935.

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It should also be pointed out that the supply of the staple foods was usually short at the end of the dry season and that starvation periods, in which many people died, were occurring several times in a life-time. For instance in a thirty-year period (1900–30) among the events used as references to assess the age of people, three famines are remembered: in 1908, 1918, and 1924.

The above considerations take into account only the total production of available food in the country. But it is obvious that in a society composed of several groups very unequal in power, access to food was not the same for everybody. It seems that we may safely infer that the normal diet of many Hutu was barely adequate to sustain people who had to spend a considerable amount of physical effort in agricultural tasks.

In the preparation of meals, two facts relevant to health should be mentioned. Firstly, the methods of cooking very often resulted in a diminution of the nutritive value of food. For instance, beans cooked in water lose from one-sixth to one-fifth of their carbohydrates.[27] Secondly, the standards of cleanliness in food preparation were very high among the Tutsi, though more for magical than for hygienic reasons. This applies particularly to milk. To avoid flies and dust, receptacles containing milk were always closed with basketwork conic covers adorned with elongated geometric patterns. It is believed that if milk comes into contact with anything impure, the cow would be harmed. The contaminating substances were not always connected with the Western idea of dirtiness. For instance water was considered dangerous to milk. Consequently the wooden vessels in which milk was kept were not washed out with water but with cows' urine.

The equatorial situation of Ruanda, combined with the rather cold climate due to its elevation, resulted in the spreading of diseases characteristic of tropical as well as of temperate regions. Yaws, typhoid fever, tuberculosis, recurring fevers, and a large variety of intestinal diseases are quite common in Ruanda today.[28] They are not new diseases resulting from new conditions introduced by the European occupation, such as malaria, which was unknown in Ruanda except in the narrow strip adjacent to the Ruzizi River until roads were built permitting a very rapid transportation of people, or some venereal diseases which spread

[27] Ministère des Colonies, 1951b, p. 49-51.
[28] Cf. Lestrade, 1955; Vincent, 1953, pp. 16-18.